WHAT IS CLAIMED IS:

1. A system, comprising:

an extra-dimension clip-map generator that generates an extra-dimension clip-map (ECM), wherein said ECM includes multiple levels of detail made up of texel data having coordinates in one or more dimensions corresponding to the dimensions of a source texture image and an extra-dimension coordinate having values associated with the multiple levels of detail; and

a memory that stores said ECM, whereby texture can be applied when rendering a frame based on texel data sampled from said stored ECM.

2. The system of claim 1, wherein said memory comprises texture memory.

3. The system of claim 2, further comprising graphics hardware, wherein said graphics hardware includes said texture memory.

4. The system of claim 3, wherein said graphics hardware comprises a graphics card.

5. The system of claim 2, further comprising an extra-dimensional clip-map manager that manages loading of said ECM in said texture memory.   ·

6. The system of claim 5, wherein said extra-dimensional clip-map manager further manages loading of updates to texel data in said ECM.

7. A method, comprising:

storing a texture mip-map in a first memory;

generating a clip-map of said stored texture mip-map, said clip-map having texel data representing multiple levels of detail of a source texture and a clip center that can be associated with a reference point of a scene to be rendered;

assigning an extra-dimension coordinate having values associated with the multiple levels of detail of said clip-map to obtain an extra-dimension clip-map.

8. The method of claim 7, further comprising loading the extra-dimension clip-map into texture memory in graphics hardware.

9. The method of claim 8, further comprising rendering a frame including applying texture to pixels based on texel data drawn from the loaded extra-dimension clip-map in texture memory.

10. The method of claim 9, wherein said texture applying step includes:
determining an extra-dimension coordinate value associated with a corresponding level of detail texture available in the loaded ECM.

11. The method of claim 10, wherein said extra-dimension coordinate value determining step includes:

determining the highest detail level texture in texture memory (ClipLOD) as function of a distance from a clip center of the ECM to an appropriate texture sample in texel space and an invalid border region for a clip map tile;

determining a final LOD value (LOD) from the maximum of ClipLOD and a LOD value calculated according to conventional mip-mapping (LOD_mip).

12. The method of claim 7, further comprising loading updates to said texel data in said ECM.

13. A system, comprising:

first memory means for storing a texture mip-map;

means for generating a clip-map of said stored texture mip-map, said clip-map having texel data representing multiple levels of detail of a source texture

and a clip center that can be associated with a reference point of a scene to be rendered;

means for assigning an extra-dimension coordinate having values associated with the multiple levels of detail of said clip-map to obtain an extra-dimension clip-map.

14. The system of claim 13, further comprising means for loading the extra-dimension clip-map into texture memory in graphics hardware.

15. The system of claim 14, further comprising means for rendering a frame including means for applying texture to pixels based on texel data drawn from the loaded extra-dimension clip-map in texture memory.

16. The system of claim 15, wherein said texture applying means includes: means for determining an extra-dimension coordinate value associated with a corresponding level of detail texture available in the loaded ECM.

17. The system of claim 14, further comprising means for loading updates to said texel data in said ECM.

18. A texture data structure that enables clip-mapping with graphics hardware that includes texture memory, comprising:

an extra-dimension clip-map (ECM), wherein said ECM includes multiple levels of detail made up of texel data having coordinates in at least one dimension associated with a respective one or more dimensions of a source texture image and an extra-dimension coordinate having values associated with the multiple levels of detail, whereby texture can be applied from said ECM during texture roaming.

19. A system, comprising:

a host computer that executes an application requiring rendering with texture;

commodity graphics hardware having texture memory, said commodity graphics hardware being coupled to said host processor; wherein said commodity graphics hardware carries out rendering and applies texture to pixel data based on an extra-dimensional clip-map in said texture memory.

20. An graphics apparatus, comprising:

texture memory, said texture memory stores a texture data structure that enables clip-mapping with graphics hardware, said texture data structure comprising multiple levels of detail made up of texel data having coordinates in at least one dimension associated with a respective one or more dimensions of a source texture image, and an extra-dimension coordinate having values associated with the multiple levels of detail, whereby texture can be applied from said texture data structure during texture roaming.

21. The graphics apparatus of claim 20, wherein at least one of the multiple levels of detail are clipped to a clip size and are centered about a clip center.